

100/02139 A04

IN THE CLAIMS

1-138. (Cancelled)

139. (Currently amended) A smart card comprising:

a memory for storing information;

at least one transmitting or receiving antenna, suitable for transmitting or receiving acoustic signals; anda low frequency circuit, adapted to handle transmission of information from the memory, or reception of information for storage in the memory, via associated with-said antenna on an acoustic carrier and said memory, which information is modulated on the an acoustic carrier at a frequency of between 5 kHz and 100 kHz.

140. (Previously presented) A smart card according to claim 139, wherein said at least one antenna comprises an individual transmission antenna.

141. (Previously presented) A smart card according to claim 139, wherein said at least one antenna comprises an individual reception antenna.

142. (Previously presented) A smart card according to claim 139, wherein said at least one antenna comprises a combined antenna for both reception and transmission.

143. (Previously presented) A smart card according to claim 139, wherein said at least one antenna comprises an array antenna.

144. (Previously presented) A smart card according to claim 154, wherein said at least one antenna comprises an acoustic antenna.

145. (Previously presented) A smart card according to claim 154, wherein said at least one antenna comprises an RF antenna.

146. (Previously presented) A smart card according to claim 139, comprising a processor for processing said information.

100/02139 A04

147. (Previously presented) A smart card according to claim 146, wherein said processor generates a response to an interrogation of said smart card.

148. (Previously presented) A smart card according to claim 146, wherein said memory comprises a long-term memory.

149. (Previously presented) A smart card according to claim 146, wherein said memory comprises a temporary memory for said processor.

150. (Previously presented) A smart card according to claim 139, wherein said carrier frequency is less than 80 kHz.

151. (Previously presented) A smart card according to claim 139, wherein said carrier frequency is less than 60 kHz.

152. (Previously presented) A smart card according to claim 293, wherein said carrier frequency is less than 50 kHz.

153. (Previously presented) A smart card according to claim 139, wherein said carrier frequency is less than 40 kHz.

154. (Previously presented) A smart card comprising:

a memory for storing information;

at least one transmitting or receiving antenna; and

a low frequency circuit, for handling information associated with said antenna and said memory, which information is modulated on a carrier frequency of between 5 kHz and 30 kHz.

155. (Previously presented) A smart card according to claim 154, wherein said carrier frequency is less than 25 kHz.

156. (Previously presented) A smart card according to claim 139, wherein said carrier frequency is less than 21 kHz.

100/02139 A04

157. (Previously presented) A smart card according to claim 139, wherein said carrier frequency is over 10 kHz.

158. (Previously presented) A smart card according to claim 139, wherein said carrier frequency is over 14 kHz.

159. (Previously presented) A smart card according to claim 139, wherein said carrier frequency is over 16 kHz.

160. (Previously presented) A smart card according to claim 139, wherein said carrier frequency is over 17 kHz.

161. (Previously presented) A smart card according to claim 139, wherein said at least one antenna comprises a piezoelectric antenna.

162. (Previously presented) A smart card according to claim 139, comprising a high-frequency circuit for modulating information on a carrier frequency higher than 200 kHz.

163. (Previously presented) A smart card according to claim 139, comprising a high-frequency circuit for modulating information on a carrier frequency higher than 1 MHz.

164. (Previously presented) A smart card according to claim 162, wherein said high frequency circuit comprises an RF circuit.

165. (Previously presented) A smart card according to claim 139, comprising a high frequency circuit adapted to demodulate information from a carrier frequency higher than 200 kHz.

166. (Previously presented) A smart card according to claim 139, wherein said smart card implements a two-way communication protocol.

167. (Previously presented) A smart card according to claim 166, wherein said protocol comprises an error correction protocol.

100/02139 A04

168-187. (Cancelled)

188. (Previously presented) A smart card comprising:

- a memory;
- at least one acoustic signal reception element;
- a speech input circuit, for entering speech signals received by the at least one reception element into said memory; and
- an external acoustic communication link circuit for demodulating information from sound or speech signals received by the acoustic signal reception element.

189. (Cancelled)

190. (Previously presented) A smart card comprising:

- a memory;
- an external communication link for communicating information to or from said memory;
- and
- a biometric data acquisition circuit, for acquiring biometric data, wherein said circuit shares an input transducer with said communication link.

191. (Previously presented) A smart card according to claim 190, wherein said communication link comprises an acoustic communication link.

192. (Previously presented) A smart card according to claim 190, wherein said biometric data acquisition circuit comprises a voice input circuit.

193. (Previously presented) A smart card according to claim 190, wherein said biometric data acquisition circuit comprises a motion determination circuit.

194. (Previously presented) A smart card according to claim 193, wherein said biometric data comprises motion of the smart card in the form of a gesture.

195. (Previously presented) A smart card according to claim 193, wherein said biometric data

100/02139 A04

comprises motion of the smart card in the form of handwriting.

196. (Previously presented) A smart card according to claim 190, comprising a processor for evaluating said biometric data against a sample of biometric data.

197. (Previously presented) A smart card according to claim 196, wherein said biometric data is stored in said memory.

198. (Previously presented) A smart card according to claim 190, wherein said acquired biometric data is stored in said memory.

199-202 (Cancelled)

203. (Previously presented) A smart card comprising:

- an array of pressure detectors for determining spatial positions of pressure changes on said array;

- a memory; and

- an external communication link for transmitting information from said card responsive to information in said memory and said detected pressure changes.

204. (Previously presented) A smart card according to claim 203, wherein said array of detectors comprises a surface acoustic wave (SAW) detector.

205. (Previously presented) A smart card according to claim 203, wherein said array of detectors comprises an array of individually electrified piezoelectric elements.

206-234. (Cancelled)

235. (Previously presented) A two part smart card, comprising:

- a first separable part including at least a memory portion of the smart card; and

- a second separable part, which is flexible, comprising at least a holding element for holding said first part and an electronic circuit associated with an operation of said first part.

100/02139 A04

236. (Previously presented) A smart card according to claim 235, wherein said electronic circuit comprises a power source.

237. (Previously presented) A smart card according to claim 236, wherein said power source comprises a receiver for transmitted power.

238. (Previously presented) A smart card according to claim 236, wherein said power source comprises a battery.

239. (Previously presented) A smart card according to claim 235, wherein said electronic circuit comprises an amplifier.

240. (Previously presented) A smart card according to claim 235, wherein said electronic circuit comprises an antenna.

241. (Previously presented) A smart card according to claim 235, wherein said first part is an independently operable smart card.

242. (Previously presented) A smart card according to claim 235, wherein said first part requires said electrical circuit to operate.

243. (Currently amended) A smart card comprising:

a flat card having a thickness about the thickness of a credit card;

a medium range communication link, on or in the flat card, having a range of over 0.5 meters and suitable for communication with a computer;

a speaker; and

circuitry for presenting non-speech information from said link over said speaker as speech.

244. (Previously presented) A smart card according to claim 243, comprising pager circuitry.

245. (Previously presented) A smart card according to claim 243, comprising telephone handset circuitry.

100/02139 A04

246. (Previously presented) A smart card according to claim 243, comprising acoustic help-file viewing circuitry.

247. (Previously presented) A smart card according to claim 243, wherein said link comprises an acoustic link.

248. (Previously presented) A smart card according to claim 247, wherein said speaker forms a part of said acoustic link.

249. (Previously presented) A smart card according to claim 247, wherein said acoustic link is operative to use office equipment as a base station from receiving said information.

250. (Previously presented) A smart card according to claim 249, wherein said office equipment comprises computers with sound systems designed for music.

251. (Previously presented) A smart card according to claim 249, wherein said office equipment comprises a telephone and wherein said smart card communicates using a speaker of said telephone.

252-261. (Cancelled)

262. (Currently amended) A smart card comprising:

a communication link with a computer;

an authentication circuit for authenticating a transaction; and

an acoustic display configured to that sounds pertinent information regarding the transaction, retrieved via said link from said computer, prior to authentication of said transaction by the smart card.

263. (Previously presented) A smart card according to claim 262, wherein said display comprises a visual display.

264. (Cancelled)

100/02139 A04

265. (Previously presented) A smart card according to claim 262, wherein said pertinent information comprises an identification of a vendor with whom the transaction is being made.

266. (Previously presented) A smart card according to claim 262, wherein said pertinent information comprises an identification of goods being the subject of the transaction.

267. (Previously presented) A smart card according to claim 262, comprising a memory for storing a record of acceptance of said transaction by a user of said smart card.

268. (Currently amended) A pattern changing smart card, comprising:

a memory;

a communication link for transmitting or receiving information from said memory; and

a controllable pattern display having at least two states, a first state indicating that the smart card is valid and a second state indicating the smart card is invalid; and

a controller adapted to control the state of the display, such that the controllable pattern display changes to the second state responsive to a determination that the card may have been lost or stolen.

269. (Previously presented) A smart card according to claim 268, wherein at least said second state does not draw current.

270. (Previously presented) A smart card according to claim 268, wherein said smart card locks in said second state.

271. (Previously presented) A smart card according to claim 268, wherein said pattern display changes to said second state over time unless otherwise activated.

272. (Previously presented) A smart card according to claim 268, comprising circuitry for switching states of said pattern display to said second state.

273. (Previously presented) A smart card according to claim 272, wherein said circuitry comprises a delay circuit for delaying said changing for a period of time.

100/02139 A04

274. (Previously presented) A smart card according to claim 272, comprising circuitry for receiving a command over said link to switch states.

275. (Previously presented) A smart card according to claim 274, wherein said command is verified using a digital signing or encryption.

276. (Previously presented) A smart card according to claim 268, wherein said invalid-indicating pattern in said second state is perceptible by a human viewer.

277. (Previously presented) A smart card according to claim 139, wherein said antenna radiates or receives far-field radiation.

278. (Previously presented) A smart card according to claim 139, wherein said card transmits information without a carrier wave.

279. (Cancelled)

280. (Previously presented) A smart card according to claim 154, wherein said at least one antenna comprises at least one transmission antenna and at least one separate reception antenna.

281. (Previously presented) A smart card according to claim 154, wherein said at least one antenna comprises a piezoelectric antenna.

282. (Previously presented) A smart card according to claim 154, comprising a high-frequency circuit for modulating information on a carrier frequency higher than 200 kHz.

283. (Previously presented) A smart card, comprising:

- a memory for storing information;
- at least one transmitting or receiving piezoelectric antenna; and
- a low frequency circuit, for handling information associated with said antenna and said memory, which information is modulated on a carrier frequency of between 5 kHz and 100 kHz.

284. (Previously presented) A smart card according to claim 283, wherein said at least one

100/02139 A04

antenna comprises at least one transmission antenna and at least one separate reception antenna.

285. (Previously presented) A smart card according to claim 283, wherein the low frequency circuit is adapted for transmission of acoustic signals through the piezoelectric antenna.

286. (Previously presented) A smart card according to claim 283, comprising a processor for processing said information and wherein the memory comprises a temporary memory for said processor.

287. (Previously presented) A smart card according to claim 283, comprising a high-frequency circuit for modulating information on a carrier frequency higher than 200 kHz.

288. (Currently amended) A smart card, comprising:

- a memory for storing information;

- at least one transmitting or receiving antenna;

- a low frequency circuit, for handling information associated with said antenna and said memory, which information is modulated on a carrier frequency of between 5 kHz and 100 kHz; and

- a high frequency circuit, for handling information associated with said antenna and said memory, ~~a high frequency circuit for modulating which~~ information is modulated on a carrier frequency higher than 1 MHz-100kHz.

289. (Previously presented) A smart card according to claim 288, wherein said at least one antenna comprises at least one transmission antenna and at least one separate reception antenna.

290. (Previously presented) A smart card according to claim 288, wherein said at least one antenna comprises an acoustic antenna.

291. (Previously presented) A smart card according to claim 288, comprising a processor for processing said information and wherein the memory comprises a temporary memory for said processor.

292. (Cancelled)

100/02139 A04

293. (Previously presented) A smart card, comprising:

- a memory for storing information;
- at least one receiving antenna; and
- a low frequency circuit, for handling information transmitted to the at least one receiving antenna, which information is modulated on a carrier frequency of between 5 kHz and 100 kHz.

294. (Previously presented) A smart card according to claim 293, wherein said carrier frequency is less than 25 kHz.

295. (Previously presented) A smart card according to claim 293, wherein said carrier frequency is about one of 22kHz, 24kHz, 32 kHz, 44 kHz or 48kHz.

296. (Previously presented) A smart card according to claim 235, wherein the second part is in the form of a badge holder.

297. (Previously presented) A smart card according to claim 235, wherein when the first separable part is held by the second separable part, the second part allows a clear field of view to the first part.

298. (Previously presented) A smart card according to claim 238, wherein the first separable part also includes a battery.

299. (Previously presented) A smart card according to claim 241, wherein the second part enhances the transmission range of the first part.